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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/802,874 | 03/18/2004 | Hideo Matsunaga | Q80281 | 5453 |

65565 7590 07/11/2008

SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
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| EXAMINER | |
|---|---|
| PASSANITI, SEBASTIANO | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3711 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 07/11/2008 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/802,874 | MATSUNAGA ET AL. | |
| | Examiner | Art Unit | |
| | Sebastiano Passaniti | 3711 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *see detailed Office action*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/30/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

**DETAILED ACTION**

This Office action is responsive to communication received 01/30/2008 – IDS; 02/15/2008 – Amendment.

Claims 1-20 remain pending.

Following is an action on the MERITS:

As a substantial portion of a previous Office action is repeated below and in an effort to assist the applicant in identifying that portion of the current rejection which is newly presented, bolded regular font wording has been used to identify language newly added to the body of the 35 U.S.C. §103 rejection, below. Minor editorial changes to any remaining portion of the previous Office action may also be included herein, but may not be necessarily shown in bolded text.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-15 STAND rejected and claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya (U.S. Patent No. 5,346,217) in view of Motomiya (U.S. Patent 4,438,931), Hoshi (U.S. Patent No. 5,205,560), Tsuchida (U.S. Patent No. 5,255,913), Kusumoto (U.S. Patent 6,634,958), Murphy (U.S. Patent No. 6,332,847), Dekura (U.S. Patent No. 5,538,246) and Imai (U.S. Patent No. 6,056,649). Note that each of Kusumoto and Murphy were filed prior to applicant's earliest effective

filing date. The patent to Tsuchiya shows every feature claimed with the exception of a crown and side portion each having a Young's modulus lower than the face and sole portions, a rib on the sole portion and the specific claimed Young's modulus values. More specifically, Tsuchiya fails to disclose that the crown and at least part of the side portion are collectively press-molded together while the face and sole are molded separately therefrom. Instead, Tsuchiya shows that the club head pieces are of substantially the same material, while the thickness of selective pieces, notably the crown, is thinned in order to provide added repulsion force to a struck ball, thereby resulting in a longer flying distance (see the abstract in Tsuchiya). Specific to claims 2 and 8, Motomiya shows it to be old in the art to fabricate a hollow club head using plural shell pieces, one of which incorporates the top or crown section along with a portion of the sides of the shell. The remaining diverse shell pieces define a face portion and a sole portion. See Figure 5 in Motomiya. The embodiment in Figure 5 of Motomiya is but one of several arrangements for the preparation of the shell pieces, with the further embodiments in Figures 2-4 detailing alternative designs for fabricating the distinct shell components. Tsuchiya likewise displays a plethora of club head shell combinations, which are assembled to form a hollow shell. See Figures 8A-8C in Tsuchiya. In view of the patent to Motomiya, it would have been obvious to modify the device in the cited art reference to Tsuchiya by forming the crown and at least a part of the side portion together, with the remaining portions (i.e., sole and face) formed separately and subsequently joining all of these pieces to come up with a complete hollow club head, the motivation being to simply provide another convenient manner in which to join the

club head pieces. Specific to claims 6 and 12, note that Motomiya further obviates the use of a rib (215), a part of which extends along the sole for reinforcement purposes. In view of this further teaching by Motomiya, it would have been obvious to modify the Tsuchiya device by providing a rib along the sole, the motivation being to enhance the strength of the hollow shell adjacent the sole. Tsuchida is cited to show that it is old in the art to provide a golf club head with a top portion that exhibits a lower modulus than the remainder of the shell. More specifically, the crown portion (5) is made of a first material with a modulus of 210 GPA, while the remainder of the shell is made of a material having a modulus of between 150-250 GPA (col. 6, lines 44-57). Although Tsuchida is mainly concerned with a club head in which the center includes a core material (12), a similar arrangement showing the flexibility of the crown is evidenced in a club head having a hollow interior, such being the case with the further teaching to Hoshi. Specifically, Hoshi shows a club head in which the crown portion (14b) is made of a material wherein the Young's modulus differs from the modulus of at least the sole portion (col. 6, lines 4-16). In a manner similar to Tsuchida, the crown in the Hoshi device is allowed to flex during impact of the clubface with a ball so that the flight distance of the ball is increased and the sweet spot area of the clubface is enlarged to better enhance the directional stability of a struck ball. See col. 1, lines 35-45 in Hoshi and col. 6, lines 18-29 in Tsuchida. All of Tsuchiya, Hoshi and Tsuchida are concerned with enhancing the repulsion characteristics of the face for increasing the flying distance of a struck golf ball. Thus, in view of the patents to Hoshi and Tsuchida, it would have been obvious to modify the device in the Tsuchiya device by fabricating the crown

portion from a material that is diverse from the material of the remaining shell members, the motivation being to provide another means for increasing the flexure of the crown on impact of a golf ball with the clubface, the flexure creating improved flight of the struck ball. Specific to claims 3 and 9, Tsuchiya shows a crown having a thickness between 0.6 and 3 mm (col. 10, lines 10-14). Specific to claims 4, 5, 10 and 11, while Tsuchiya does not disclose the specific values for Young's modulus, it is clear from a reading of the entirely of the prior art documents cited that the selection of a material or combination of materials to take advantage of the known properties of said material(s) would have been obvious to one having ordinary skill in the art. In addition, the obviousness in the selection of a known material has been established under the Patent statutes. See *In re Hopkins*, 145 USPQ 140. Moreover, the patent to Hoshi details that the construction of the club head, particularly the thickness of the shell pieces, is carried out with a consideration of the Young's modulus of the material selected for the head (col. 2, lines 56-65). In Hoshi, a distinct relationship has been acknowledged among the desired Young's modulus, the thickness of the crown and the material chosen. Since the applicant has not invented the claimed materials having the claimed Young's modulus values and since the applicant has merely selected materials exhibiting a Young's modulus that is optimally compatible with the particular thickness of the shell, the specific claimed values are not deemed critical. As to claims 13, 14 and 15 and regarding the thickness requirements of the various shell segments of the head, i.e., the sole, crown, side and/or face portions, note column 4, lines 48-56 along with Figures 1, 5 and 6 in the primary Tsuchiya reference. As for the claimed material alloy

requirement of claim 14, note column 9, line 11 through column 10, line 2 in Tsuchiya, wherein it is clear that Tsuchiya discloses or comprises at least the claimed elements. Specific to the press-molding limitation of claim 15, this limitation would not appear to bear much patentable weight in this structure claim. Nonetheless, even if the press-molding limitation is considered, it is clear that the skilled artisan would have known about the various methods employed at the time of the invention, which may be used to fabricate a hollow metal club head based upon the material used for the shell, the availability of manufacturing machinery and the cost considerations in making the head. As for the specific limitation in claims 1, 7, 13, 14 and 15, reading "and an intersection angle between the crown portion and the side portion is larger than 90 degrees", reference is made to the cited references to Kusumoto and Murphy, which show it to be old in the art to fashion a wood style club head with an intersection between the crown and a side portion. See Figures 6A, 6B and 6C in Kusumoto as well as Figure 5 in Murphy. Reference is also made to the cited references to Dekura and Imai. See Figure 1 at the toe side-crown interface in Dekura and Figure 1 in Imai, again at the toe side-crown interface. While the references do not provide any specific reason for the 90 degree arrangement, one may safely conclude that such only represents an obvious design variation over prior art wood type club heads, given the enormous variance in club head design available in the art. The combined teachings of four references, namely Murphy, Kusumoto, Dekura and Imai clearly and unequivocally set forth to one of ordinary skill in the art that the specific feature of a larger than 90 degree intersection between the crown and side portions is so well known in the art as having been

repeatedly shown to be used as part of hollow metal club heads, that the use of this feature as part of another hollow metal club head design would have without question been obvious at the time of the invention. Here, the prior art teachings clearly obviate the inclusion of the claimed larger than 90-degree angle within a hollow metal club head design.

**As to the newly added limitations to claim 14, note that the identification of an upper half portion and lower half portion corresponding to the upper side portion and lower side portion, respectively, of the side portion is purely subjective. In other words, every hollow metallic shell club head may be divided into an upper and lower half, regardless of whether the club head is fashioned from a plurality of metallic shell members or from a single casting. Here, Tsuchiya clearly includes a side portion with an upper side portion corresponding to the upper half portion and a lower side portion corresponding to the lower half portion. As for the claim requirement that the sole portion be thicker than the lower side portion, such is clearly the case, as evidenced by the dimensions provided for the sole (t3) and the side portion (t2). As for the claim requirement that the various shell portions are molded by casting, this limitation would not appear to bear much patentable weight in this structure claim. Again, even if the "molded by casting" limitation is considered, it is clear that the skilled artisan would have known about the various methods employed at the time of the invention, which may be used to fabricate a hollow metal club head based upon**

**the material used for the shell, the availability of manufacturing machinery and the cost considerations in making the head.**

**As for the newly added claim requirements to claim 15, Tsuchiya provides the ability to dimension the sole and side portions to be thicker (in cross-section) than the crown smaller (in cross-sectional thickness) than the face portion, as evidenced by the ranges for the various thicknesses (t1, t2, t3), as outlined on column 4, lines 48-56.**

**As for new claims 16 and 17, the patent to Tsuchiya shows every feature claimed with the exception of an upper side portion having a Young's modulus lower than the lower side portion and the hosel portion along with a crown and side portion each having a Young's modulus lower than the face and sole portions. Tsuchida is cited to show that it is old in the art to provide a golf club head with a top portion that exhibits a lower modulus than the remainder of the shell. More specifically, the crown portion (5) is made of a first material with a modulus of 210 GPA, while the remainder of the shell is made of a material having a modulus of between 150-250 GPA (col. 6, lines 44-57). Although Tsuchida is mainly concerned with a club head in which the center includes a core material (12), a similar arrangement showing the flexibility of the crown is evidenced in a club head having a hollow interior, such being the case with the further teaching to Hoshi. Specifically, Hoshi shows a club head in which the crown portion (14b) is made of a material in wherein the Young's modulus differs from the modulus of at least the sole portion (col. 6, lines 4-16). In a manner similar to Tsuchida, the**

**crown in the Hoshi device is allowed to flex during impact of the clubface with a ball so that the flight distance of the ball is increased and the sweet spot area of the clubface is enlarged to better enhance the directional stability of a struck ball. See col. 1, lines 35-45 in Hoshi and col. 6, lines 18-29 in Tsuchida. All of Tsuchiya, Hoshi and Tsuchida are concerned with enhancing the repulsion characteristics of the face for increasing the flying distance of a struck golf ball. Thus, in view of the patents to Hoshi and Tsuchida, it would have been obvious to modify the device in the Tsuchiya device by fabricating the upper side portion with a Young's modulus lower than the lower side portion and the hosel portion along with a crown and side portion each having a Young's modulus lower than the face and sole portions, the motivation being to provide another means for increasing the flexure of the crown on impact of a golf ball with the clubface, the flexure creating improved flight of the struck ball. Note that the identification of an upper half portion and lower half portion corresponding to the upper side portion and lower side portion, respectively, of the side portion is purely subjective. In other words, every hollow metallic shell club head may be divided into an upper and lower half, regardless of whether the club head is fashioned from a plurality of metallic shell members or from a single casting. Here, Tsuchiya clearly includes a side portion with an upper side portion corresponding to the upper half portion and a lower side portion corresponding to the lower half portion.**

**As to new claims 17 and 18, and as for the claim requirement that the sole portion be thicker than the lower side portion, such is clearly the case, as evidenced by the dimensions provided for the sole (t3) and the side portion (t2). Moreover, Tsuchiya provides the ability to dimension the sole and side portions within a wide range of dimensional cross-thickness configurations.**

**As to new claim 19, and as for the claim requirement that the various shell portions are molded by casting, this limitation would not appear to bear much patentable weight in this structure claim. Again, even if the "molded by casting" limitation is considered, it is clear that the skilled artisan would have known about the various methods employed at the time of the invention, which may be used to fabricate a hollow metal club head based upon the material used for the shell, the availability of manufacturing machinery and the cost considerations in making the head.**

**As to new claim 20, reference is made to the cited references to Kusumoto and Murphy, which show it to be old in the art to fashion a wood style club head with an intersection between the crown and a side portion. See Figures 6A, 6B and 6C in Kusumoto as well as Figure 5 in Murphy. Reference is also made to the cited references to Dekura and Imai. See Figure 1 at the toe side-crown interface in Dekura and Figure 1 in Imai, again at the toe side-crown interface. While the references do not provide any specific reason for the 90 degree arrangement, one may safely conclude that such only represents an obvious design variation over prior art wood type club heads, given the enormous variance in club head design**

**available in the art. The combined teachings of four references, namely Murphy, Kusumoto, Dekura and Imai clearly and unequivocally set forth to one of ordinary skill in the art that the specific feature of a larger than 90 degree intersection between the crown and side portions is so well known in the art as having been repeatedly shown to be used as part of hollow metal club heads, that the use of this feature as part of another hollow metal club head design would have without question been obvious at the time of the invention. Here, the prior art teachings clearly obviate the inclusion of the claimed larger than 90-degree angle within a hollow metal club head design.**

***Response to Arguments***

In the arguments received 02/15/2008, the applicant contends that reliance on the drawing figures in the prior art references of record to show a larger than 90 degree angle between the crown portion and the side portion, as explained by the last Office action, is impermissible because the drawings are not drawn to scale and because the prior art references do not provide further details in the written text about the angle between the crown and side portions. Moreover, the applicant contends that the claimed 90 degree angle is important in that it enables casting of the club head to be more easily performed. The applicant further argues that claim 14 is patentable, since the reference to titanium alloy in Tsuchiya provided in the last Office action allegedly does not apply to the sole portion.

In response to these arguments and with respect to the use of the drawings of the prior art to show the claimed 90 degree angle, Applicant's attention is directed to MPEP 2125, which states:

> Drawings and pictures can anticipate claims if they clearly show the structure which is
> claimed. In re Mraz, 455 F.2d 1069, 173 USPQ 25 (CCPA 1972). However, the picture must show all the claimed structural features and how they are put together. Jockmus v. Leviton, 28 F.2d 812 (2d Cir. 1928). The origin of the drawing is immaterial. For instance, drawings in a design patent can anticipate or make obvious the claimed invention as can drawings in utility patents. When the reference is a utility patent, it does not matter that the feature shown is unintended or unexplained in the specification. The drawings must be evaluated for what they reasonably disclose and suggest to one of ordinary skill in the art. In re Aslanian, 590 F.2d 911, 200 USPQ 500 (CCPA 1979).
> See MPEP § 2121.04 for more information on prior art drawings as "enabled disclosures." (emphasis added).

In this case, the prior art drawings clearly show an intersection angle between the crown portion and the side portion is larger than 90 degrees. See Figures 6A, 6B and 6C in Kusumoto as well as Figure 5 in Murphy. See Figure 1 at the toe side-crown interface in Dekura and Figure 1 in Imai, again at the toe side-crown interface. The combined teachings of four references, namely Murphy, Kusumoto, Dekura and Imai clearly and unequivocally set forth to one of ordinary skill in the art that the specific feature of a larger than 90 degree intersection between the crown and side portions is well known in the art. The prevalence in the art of this claimed feature has been exhaustively depicted in the current Office action. It is clear that the skilled artisan would therefore have been motivated to provide a more curved appearance to the Tsuchiya device, if simply only for aesthetic purposes.

With respect to the applicant's argument that the claimed 90 degree angle is important at it enables casting of the club head to be more easily performed, it is noted that the casting procedure does not impart patentable weight to the claim. See MPEP §2113. It is noted that the patentability of a product does not depend on its method of production. Once the Office provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Concerning the applicant's argument that the reference to titanium alloy in Tsuchiya provided in the last Office action allegedly does not apply to the sole portion, there is no rebuttal that in fact the passage from Tsuchiya cited in the last Office action references the face. However, this same passage, found in the claim language in Tsuchiya, is open-ended and does not preclude other elements of the head from being made of a titanium alloy. Here, the disclosure of Tsuchiya must be considered in its entirety. The applicant is respectfully urged to review column 8, lines 1-15 in Tsuchiya, which details how at least the face (21) and the sole (23) are made of titanium alloy.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sebastiano Passaniti whose telephone number is 571-272-4413. The examiner can normally be reached on Monday through Friday (6:30AM - 3:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eugene L. Kim can be reached on 571-272-4463. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sebastiano Passaniti/
Primary Examiner
Art Unit 3711

S.Passaniti/sp
July 04, 2008